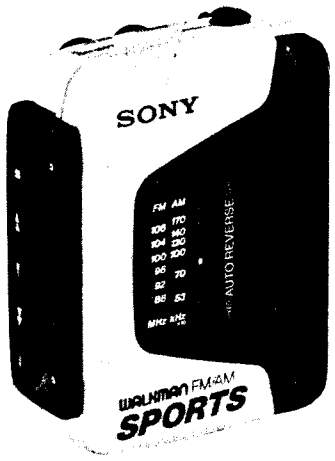
WM-AF59/BF59

SERVICE MANUAL

US Model
Canadian Model
WM-AF59
AEP Model
E Model
WM-BF59



Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MT-WMA53

SPECIFICATIONS

Frequency range
WM-AF59 FM: 87.6—108MHz/AM: 530—1,710kHz
WM-BF59 FM: 87.6—107MHz (In West Germany)
87.6—107.9MHz (In the other countries)
AM: 531—1,602kHz

Power requirement 3 V DC, two R6 (size AA) batteries

Battery life (hours)

Batteries	Radio reception	Playback
Sony battery SUM-3 (NS)	approx. 13	approx. 3
Sony alkaline battery AM3 (N)	approx. 30	approx. 7

Accessories supplied Belt clip (1)
Stereo headphones (open-air type, 1) (for Canada, Europe and U.K.)
Stereo ear receiver (open-air type, 1) (for the other countries)

Note
This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

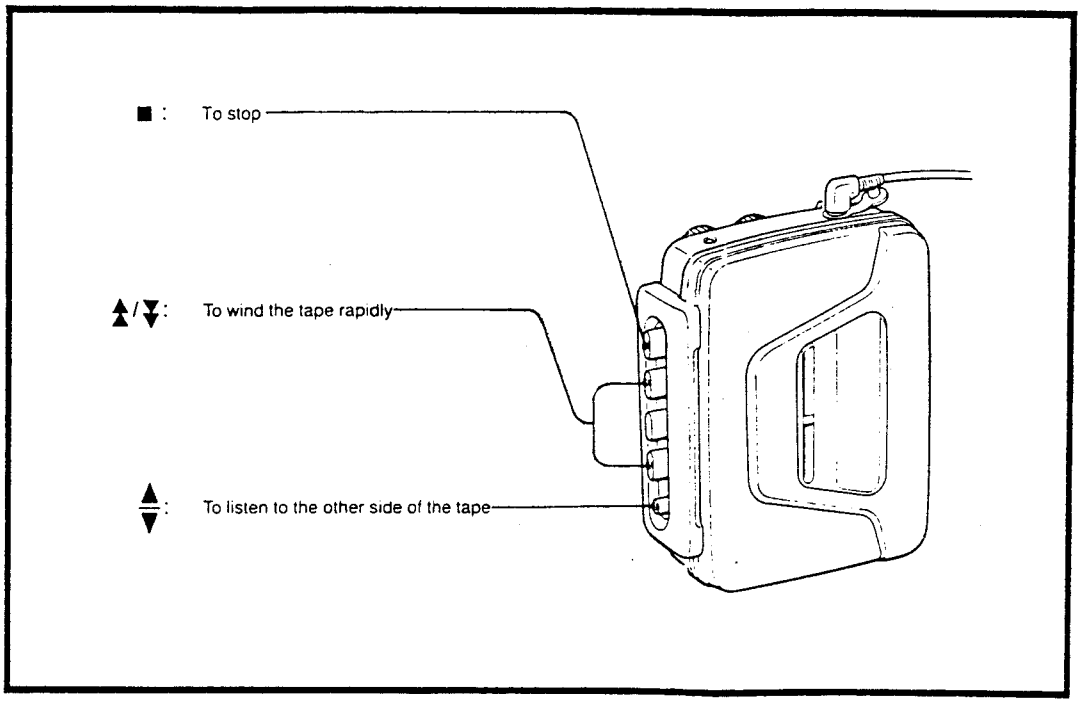
Design and specifications subject to change without notice.

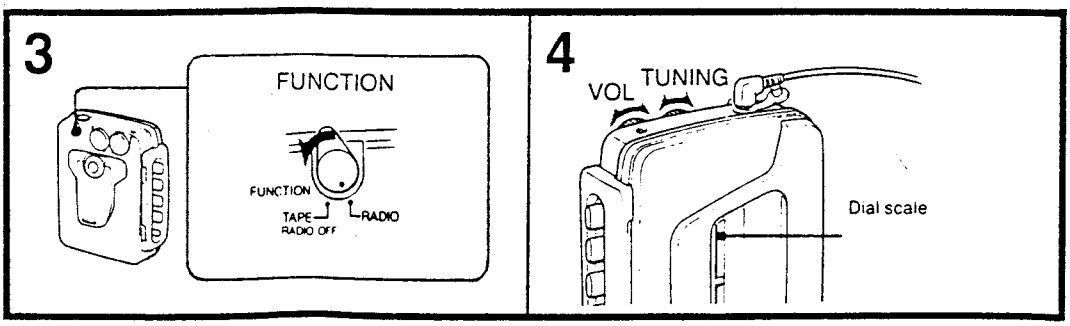
MICROFILM

RADIO CASSETTE PLAYER

SONY®

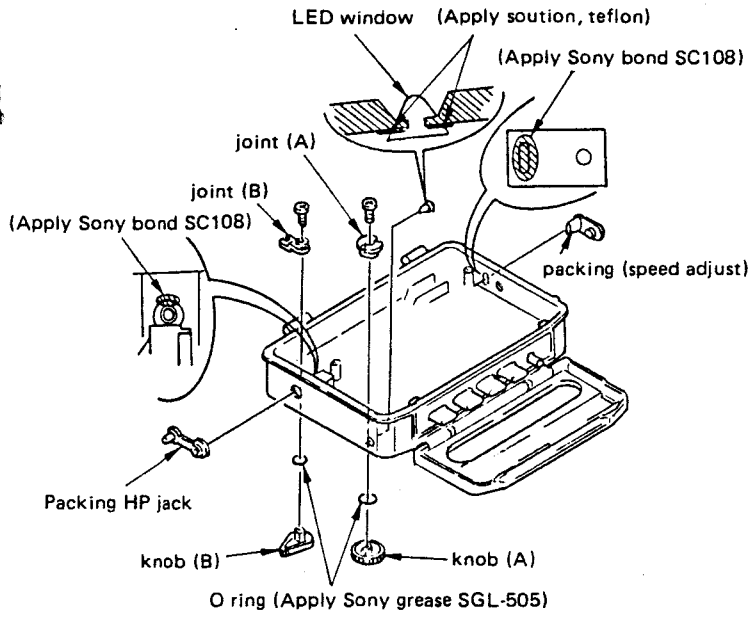
SECTION 1
GENERAL

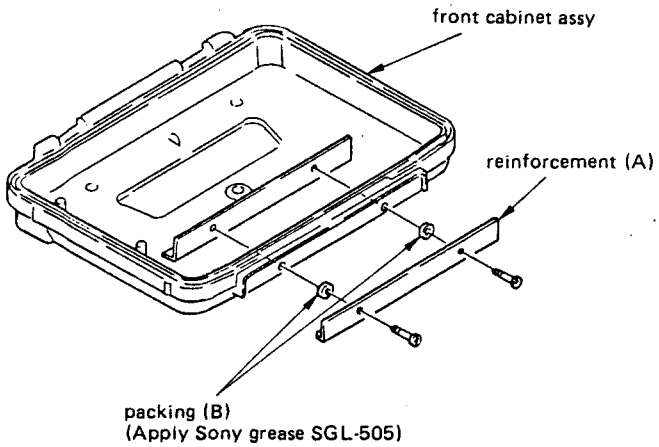




SECTION 2
NOTE ON REPAIR

2-1. WATERPROOFED SECTION

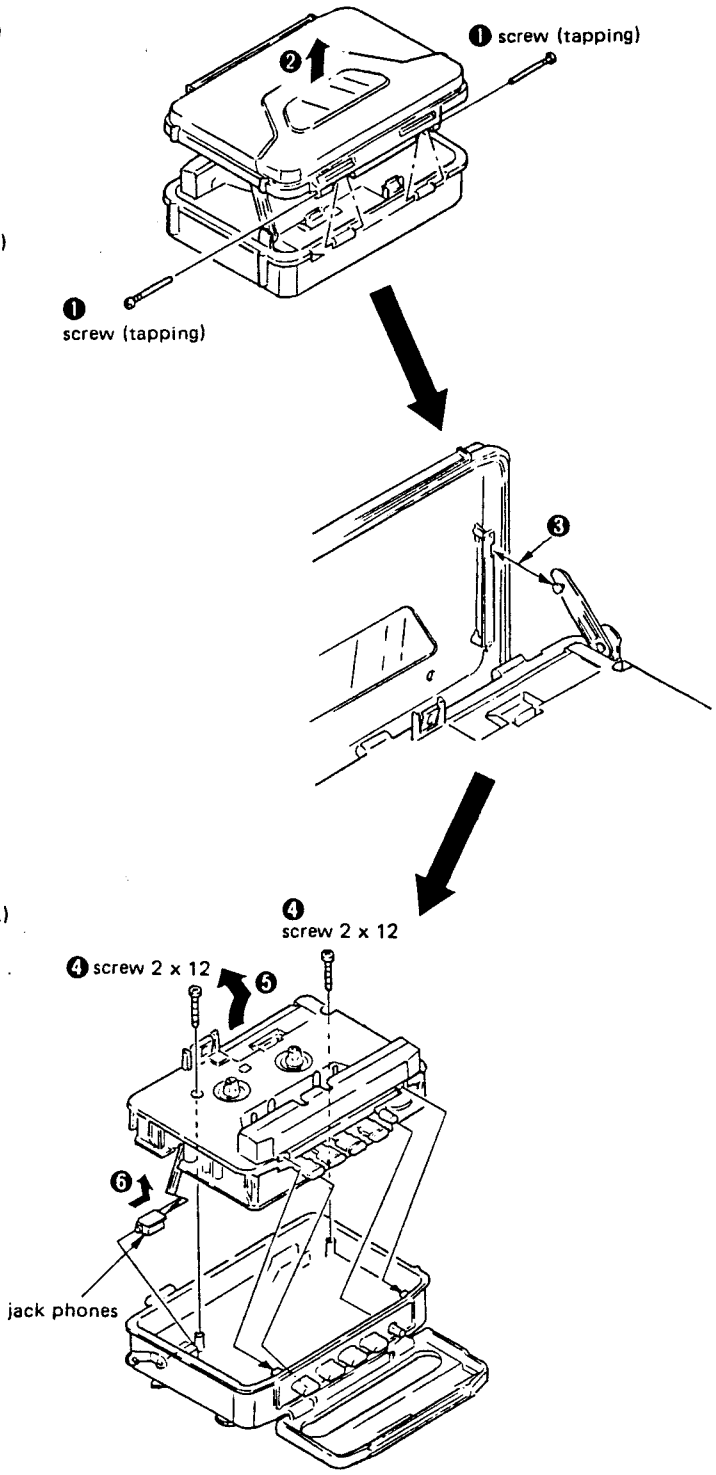




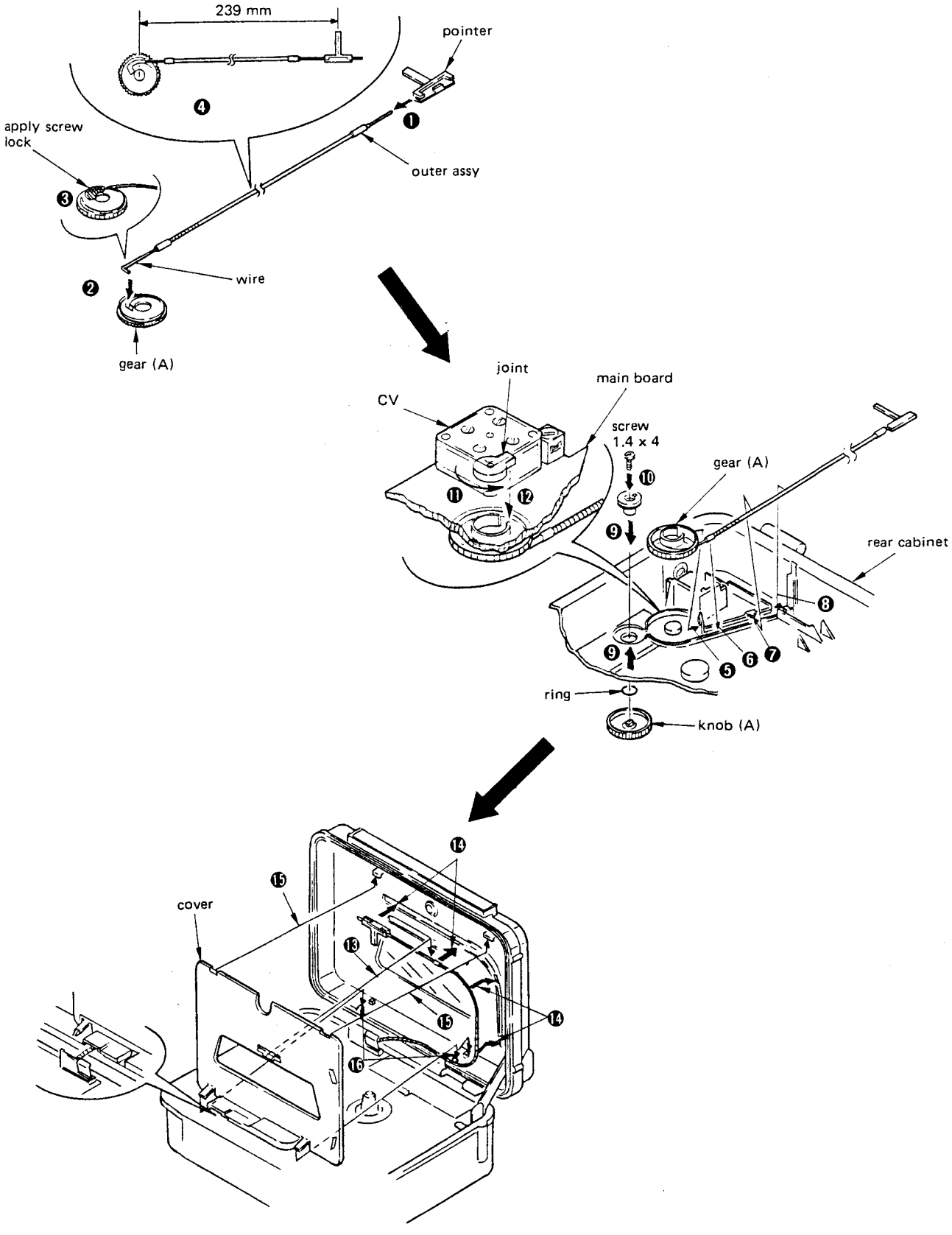
Solution teflon: 7-451-109-02
Sony bond SC108: 7-432-909-04
Sony grease SGL-505: 7-662-010-04

SECTION 3
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.



POINTER RACK SETTING



SECTION 4
ADJUSTMENTS

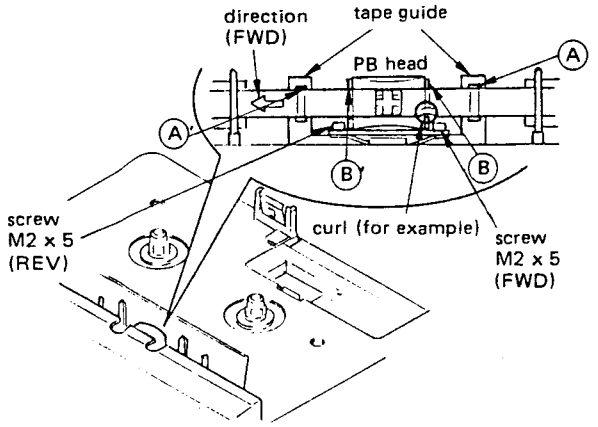
PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:

   playback head — rubber belts
   capstan — idlers
   pinch roller

2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (3.0V) unless otherwise noted.

Playback Head Height Adjustment (Note on Playback Head Replacement)



1. Turn the screw M2 x 5 so that the (B) – (B)' line of HEAD GUIDE becomes appraximately parallel to the (A) – (A)' line of TAPE GUIDE.
2. When there is a tape curl on HEAD GUIDE ((B), (B)') using a mirror cassette, turn the screw M2 x 5 to eliminate the tape curl.
   For example in the figure:
   (The curl marked O is eliminated by turning clockwise the screw M2 x 5 (right).)
3. Check in the REV mode by the same way as in the FWD mode.

4-1. MECHANICAL ADJUSTMENT

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	25 to 55 g·cm (0.35 to 0.76 oz·inch)
FWD Back Tension		1.5 to 4.5 g·cm (0.02 to 0.06 oz·inch)
REV	CQ-102RC	25 to 55 g·cm (0.35 to 0.76 oz·inch)
REV Back Tension		1.5 to 4.5 g·cm (0.02 to 0.06 oz·inch)
FF	CQ-201B	55 to 150 g·cm (0.76 to 2.1 oz·inch)
REW		55 to 150 g·cm (0.76 to 2.1 oz·inch)

Tape Pulling Force Measurement

Mode	Tension Meter	Meter Reading
FWD	CQ-403A	more than 45 g (more than 1.6 oz)
REV	CQ-403R	more than 45 g (more than 1.6 oz)

TEST TAPE

Type	Signal	Used for
WS-48A	3 kHz, 0 dB	Tape Speed Adjustment
P-4-A063	6.3 kHz, -10 dB	Dolby NR Head Azimuth Adjustment

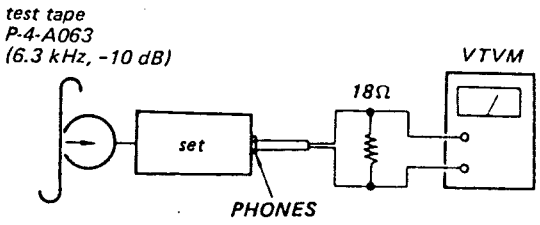
4-2. ELECTRICAL ADJUSTMENTS

4-2-1. Tape Section

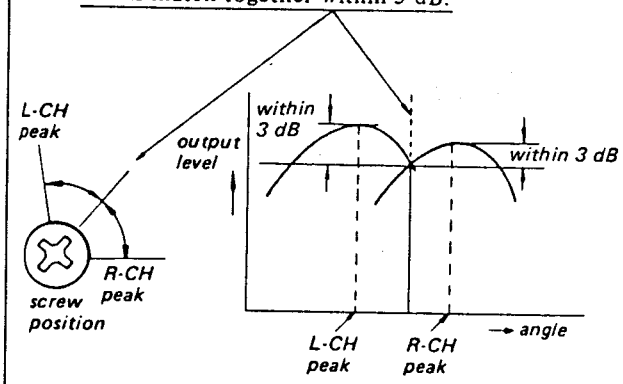
Playback Head Azimuth Adjustment

Procedure:

1. Playback mode



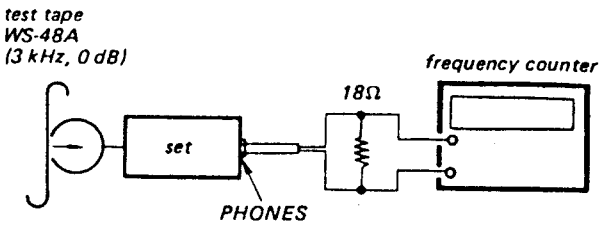
2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 3 dB.



Adjustment should be made in both directions of FWD and REV.
Adjustment screws should be stopped turning in the clockwise direction.
After the adjustment, lock the screws with locking compound.

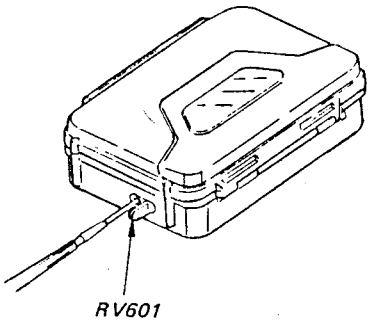
Tape Speed Adjustment

Procedure:



1. Play back WS-48A (Tape center portion) in FWD mode.
   Adjust the RV601 so that the frequency counter reads 3,000 ±90 Hz.
2. Play back WS-48A (Tape center portion) in REV mode.
   Confirm that the reading of frequency counter is within 1.5% from the reading in step 1.

Adjustment Location:

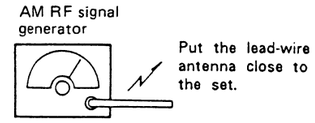


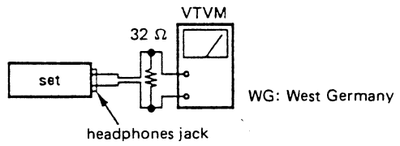
4-2-2. Radio Section

AM

Setting:

FUNCTION: RADIO
BAND: AM


AM RF signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400 Hz signal
Output level: as low as possible



MW Frequency Coverage Adjustment

< > : AF59
( ) : BF59

Pointer position	SG frequency	Adjustment part	Reading on VTVM
f minimum	520kHz	L4	maximum
f maximum	<1,750kHz> (1,680kHz)	CT4	

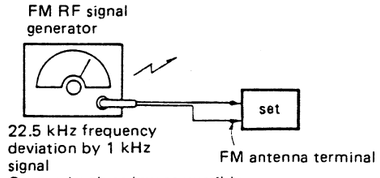
MW Tracking Adjustment

SG and set frequency	Adjustment part	Reading on VTVM
620kHz	L3	maximum
1,400kHz	CT3	

FM

Setting:

BAND: AF59/FM LOCAL
BF59/FM MONO


FM RF signal generator
set
22.5 kHz frequency deviation by 1 kHz signal
Output level: as low as possible
FM antenna terminal

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments ahould be finally done by the trimmer capacitors.

FM Frequency Coverage Adjustment

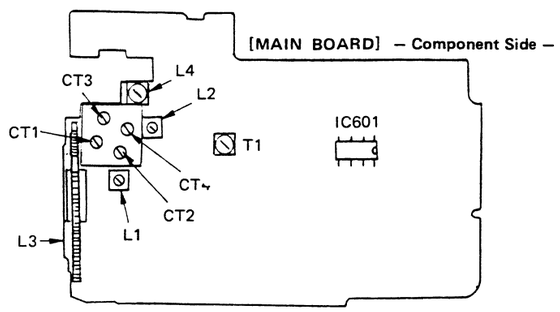
( ) : WG model

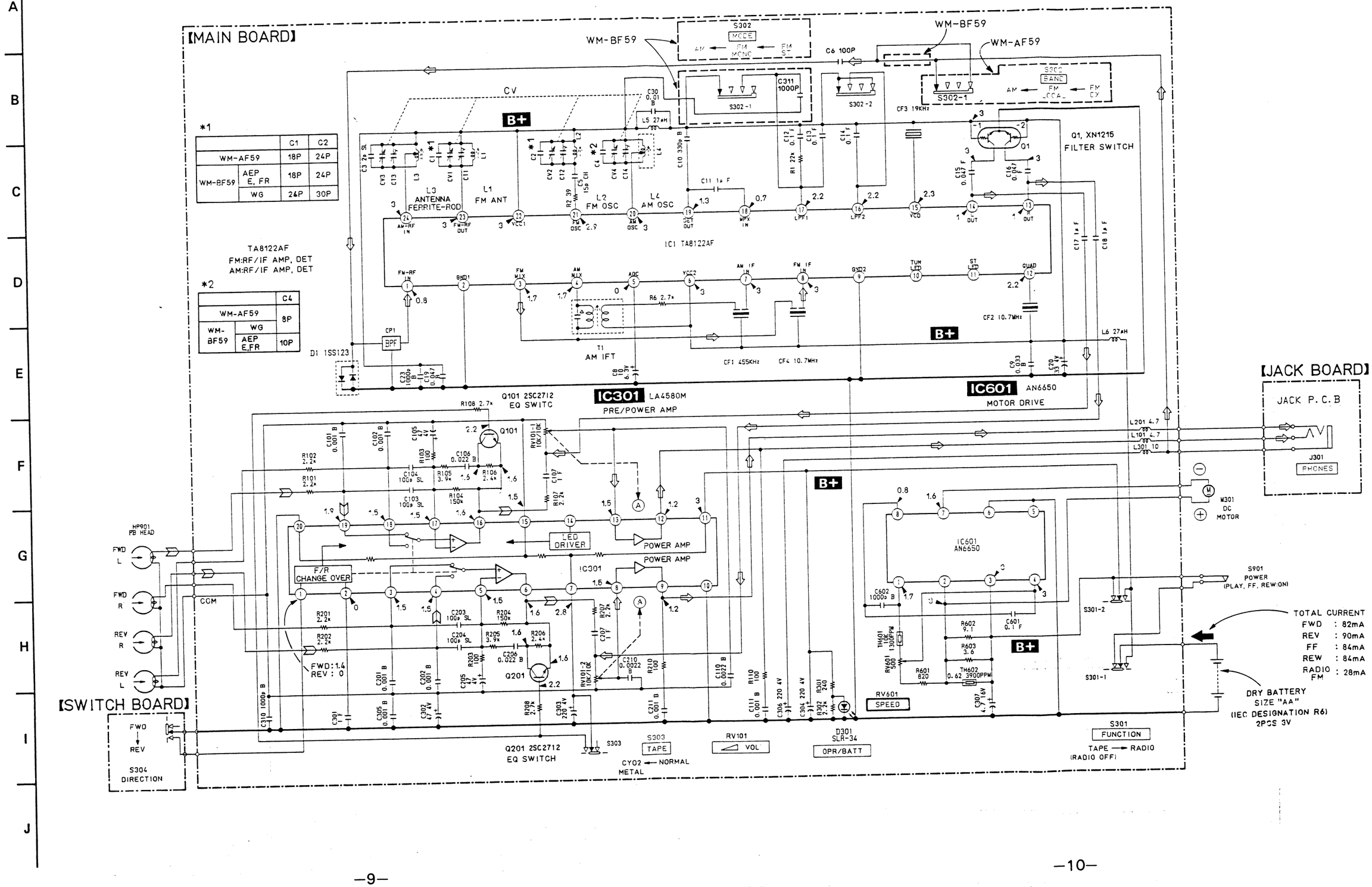
Pointer position	SG frequency	Adjustment part	Reading on VTVM
f minimum	86.0MHz (87.35MHz)	L2	maximum
f maximum	109.5MHz (107.8MHz)	CT2	

FM Tracking Adjustment

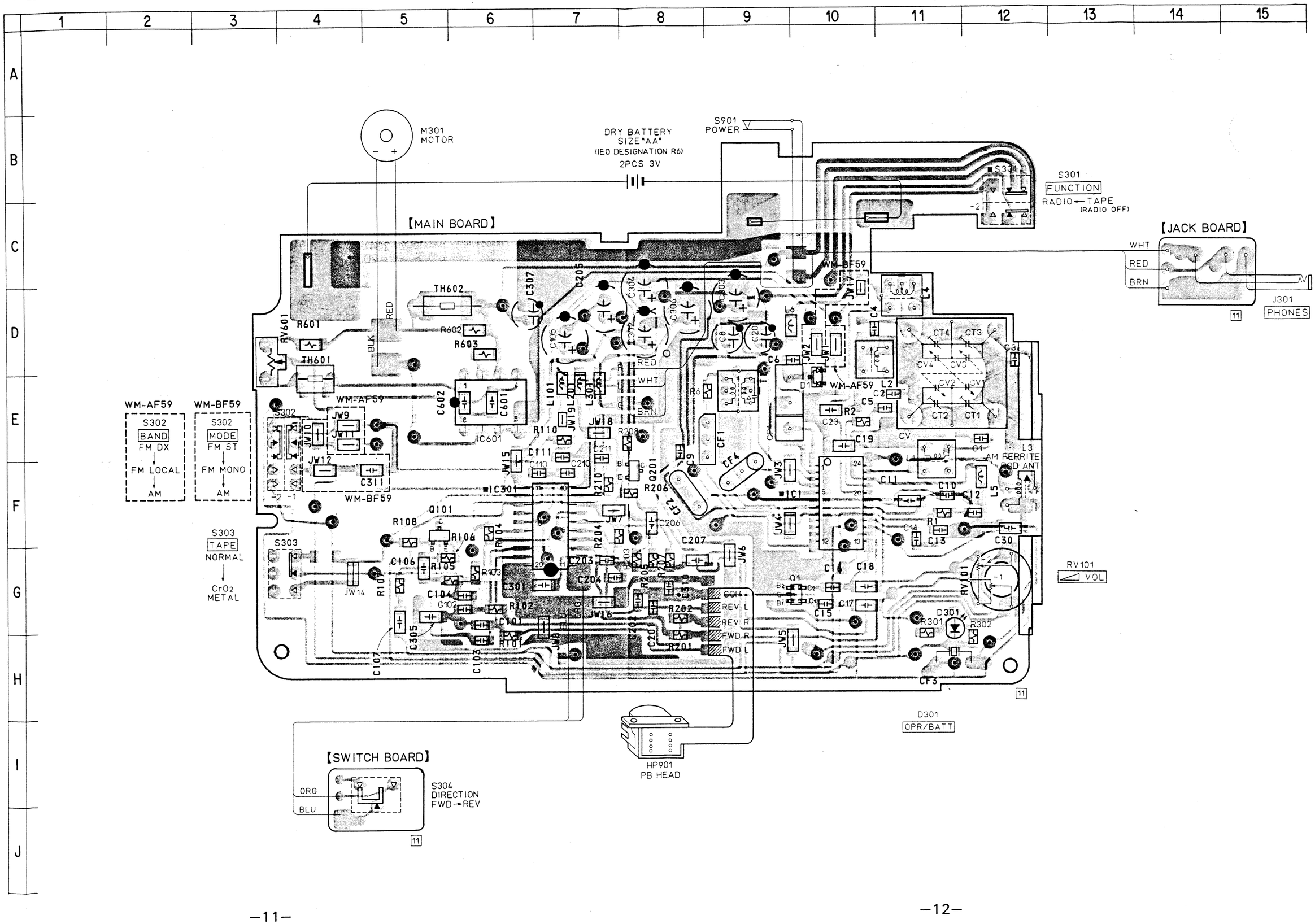
SG and set frequency	Adjustment part	Reading on VTVM
86.0MHz (87.35MHz)	L1	maximum
109.5MHz (107.8MHz)	CT1	

Adjustment Location



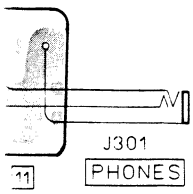

【MAIN BOARD】
WM-BF59
WM-AF59
S302
MODE
AM
FM MONO
FM ST
C6 100P
S302-1
S302-2
C311 1000P
C30 0.01 B
L5 27nH
CV
B+
CF3 19kHz
Q1, XN1215
FILTER SWITCH
Q1
C15 0.047 F
C16 0.047 F
C12 0.1 F
C13 0.1 F
C14 0.1 F
R1 22k
C10 330p B
C11 1n F
L3
ANTENNA
FERRITE-ROD
L1
FM ANT
L2
FM OSC
L4
AM OSC
IC1 TA8122AF
TA8122AF
FM:RF/IF AMP, DET
AM:RF/IF AMP, DET
*1
C1 C2
WM-AF59 18P 24P
WM-BF59 AEP E, FR 18P 24P
WG 24P 30P
*2
C4
WM-AF59 8P
WM-BF59 WG 8P
AEP E,FR 10P
FM-RF IN
BGND1
FM MIX
AM MIX
AGC
VCC2
AM IF IN
FM IF IN
BGND2
TUN LED
ST LED
QUAD
R6 2.7k
CF2 10.7MHz
CF1 455KHz
CF4 10.7MHz
T1
AM IFT
CP1
BPF
D1 1SS123
C23 1000p B
C7 0.047 B
C8 10 6.3V
C9 0.033 B
C70 33 4V
L6 27nH
C17 1n F
C18 1n F
IC301 LA4580M
PRE/POWER AMP
IC601 AN6650
MOTOR DRIVE
Q101 2SC2712
EQ SWITC
R108 2.7k
Q101
RV101-1 10K/10K
C101 B 0.001
C102 0.001 B
C105 47 4V
R102 2.2k
R101 2.2k
C103 100p SL
C104 100p SL
R103 100
C106 0.022 B
R105 3.9k
R106 2.4k
R104 150k
C107 1 F
R107 2.2k
LED DRIVER
POWER AMP
F/R CHANGE OVER
FWD: 1.4
REV : 0
R201 2.2k
R202 2.2k
C203 100p SL
C204 100p SL
R204 150k
R205 3.9k
R206 2.4k
C206 0.022 B
Q201
R203 100
C207 1 F
C210 0.0022 B
R210 100
RV101-2 10K/10K
C110 0.0022 B
C201 0.001 B
C202 0.001 B
C205 47 4V
C301 1 F
C305 0.001 B
C302 47 4V
R208 2.2k
C303 220 4V
C211 0.001 B
C310 1000p B
Q201 2SC2712
EQ SWITCH
S303
TAPE
CY02 ← NORMAL
METAL
RV101
VOL
D301
SLR-34
OPR/BATT
C111 0.001 B
R110 100
C306 220 4V
C304 220 4V
R301 220
R302 220
RV601
SPEED
IC601
AN6650
C602 1000p B
C601 0.1 F
R602 9.1
R603 3.6
TH601 100 130PPM
RV601 500
R601 820
TH602 0.62 3900PPM
C307 4.7 6.3V
S301
FUNCTION
TAPE → RADIO
(RADIO OFF)
S301-1
S301-2
S901
POWER
(PLAY, FF, REW:ON)
M301
DC
MOTOR
【JACK BOARD】
JACK P.C.B
L201 4.7
L101 4.7
L301 10
J301
PHONES
TOTAL CURRENT
FWD : 82mA
REV : 90mA
FF : 84mA
REW : 84mA
RADIO FM : 28mA
DRY BATTERY
SIZE "AA"
(IEC DESIGNATION R6)
2P2S 3V
HP901
PB HEAD
FWD L
FWD R
REV R
REV L
COM
【SWITCH BOARD】
FWD
REV
S304
DIRECTION

5-2. PRINTED WIRING BOARDS



15

RD】



● Semiconductor Location

Ref. No.	Location
D1	E-10
D301	G-11
IC1	F-10
IC301	F-7
IC601	E-6
Q1	G-10
Q101	F-5
Q201	F-8

Note on Printed Wiring Board:

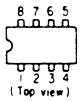
- ■ : parts mounted on the conductor side.
- : indicates side identified with part number.
- ● : Through hole.
- : Pattern on the side which is seen.
- : Pattern of the rear side.

Note on Schematic Diagram:

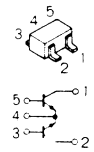
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line
- : adjustment for repair.
- Total current is measured witn no cassette installed.
- Power voltage is dc 3 V and fed with requrated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground in playback mode.
  no mark : FWD, FM
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM ⇦ : PB

● Semiconductor Lead Layouts

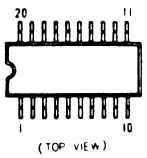
AN6650



XN1215



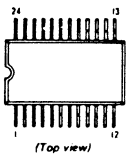
LA4580M



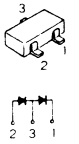
2SC2712

SLR-34VR70

TA8122AF

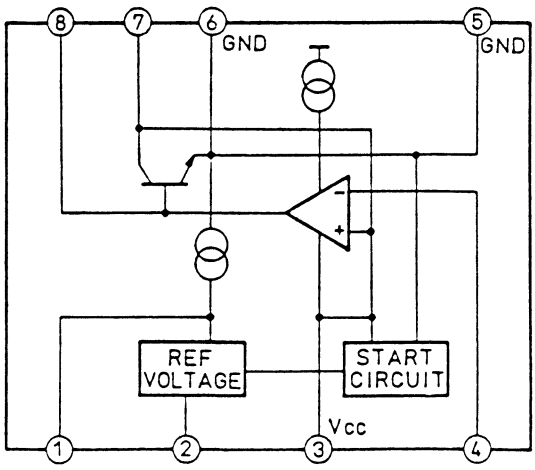


1SS226



● IC Block Diagram

IC601 AN6650



SECTION 6
EXPLODED VIEWS

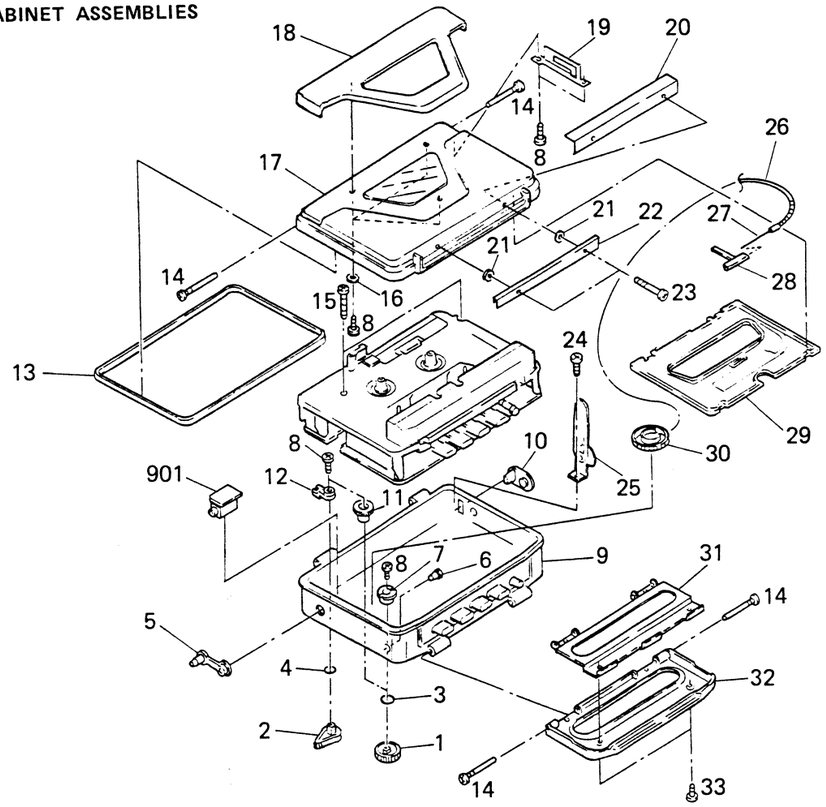
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

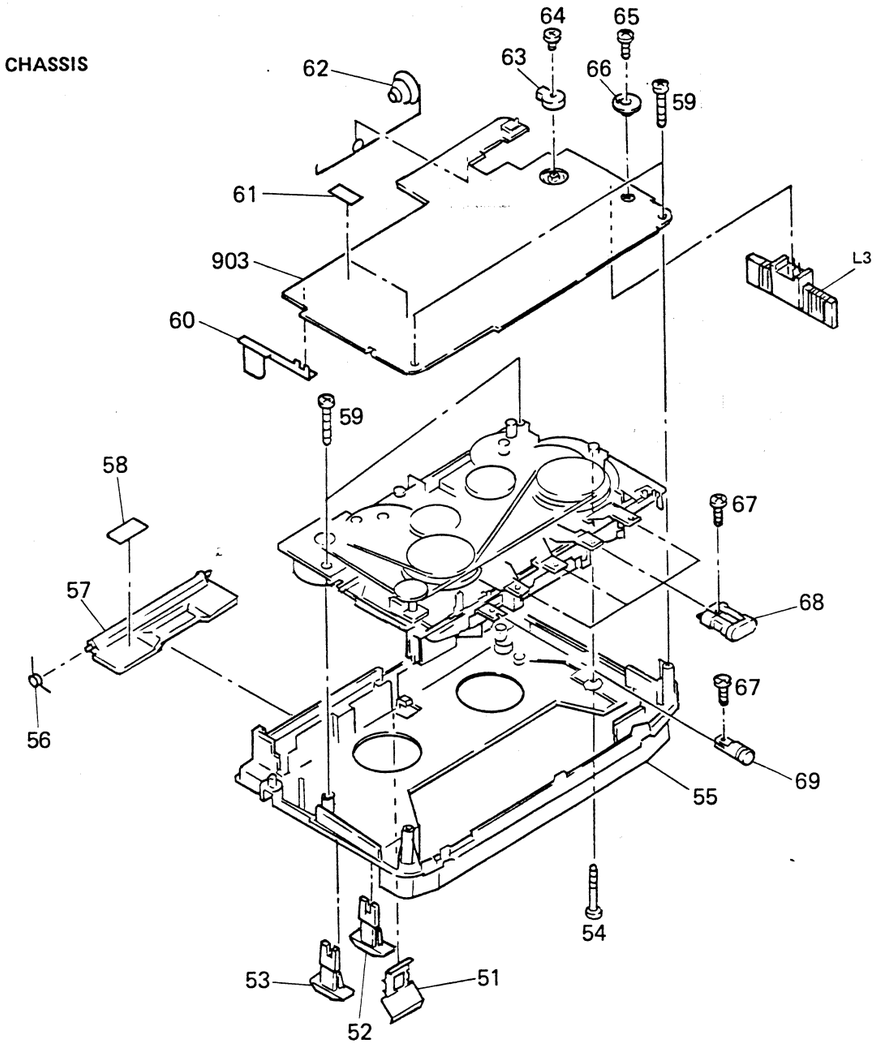
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(1) CABINET ASSEMBLIES



No.	Part No.	Description	Remarks
1	3-351-137-01	KNOB (A)	
2	3-351-136-01	KNOB (B)	
3	3-326-573-01	RING (DIA.4.9X DIA.7.1), O	
4	3-326-560-02	RING (DIA.2.5XDIA. 4.5), O	
5	3-326-520-01	PACKING, HP JACK	
6	3-326-519-01	WINDOW, LED	
7	3-351-138-01	JOINT (A)	
8	3-318-201-51	SCREW (B) (1.4X4), TAPPING	
9	X-3336-732-1	(BF59:FR) . . . .CABINET (REAR) ASSY	
	X-3336-734-1	(BF59:E). . . . .CABINET (REAR) ASSY	
	X-3336-735-1	(BF59:AEP,WG)...CABINET (REAR) ASSY	
	X-3336-736-1	(AF59).....CABINET (REAR) ASSY	
10	3-312-826-00	PACKING, (SPEED ADJUST)	
11	3-351-168-01	GEAR (B)	
12	3-351-139-01	JOINT (B)	
13	3-351-134-01	PACKING, CABINET	
14	3-326-536-11	SCREW, TAPPING	
15	7-685-107-19	SCREW +P 2X12 TYPE2 NON-SLIT	
16	3-310-368-00	RING, RETAINING	
17	X-3336-739-1	(BF59)...CABINET (FRONT) ASSY	
	X-3336-740-1	(AF59)...CABINET (FRONT) ASSY	
18	3-351-165-01	(AF59).....PLATE, ORNAMENTAL	
	3-351-165-11	(BF59:WG). ...PLATE, ORNAMENTAL	
	3-351-165-21	(BF59:AEP,E,FR)...PLATE, ORNAMENTAL	
19	*3-351-150-01	HOLDER (CLICK)	
20	*3-351-148-01	REINFORCEMENT (B)	
21	3-326-149-01	PACKING (B)	
22	*3-351-147-01	REINFORCEMENT (A)	
23	3-326-145-21	SCREW (M1.7X6.8)	
24	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
25	X-3336-727-1	ARM ASSY, CLICK	
26	*X-3336-730-1	OUTER ASSY	
27	3-351-174-01	WIRE	
28	3-351-167-01	POINTER	
29	*3-351-164-01	COVER	
30	3-351-171-01	GEAR (A)	
31	*3-351-146-01	BRACKET (BUCKLE)	
32	3-351-135-01	BUCKLE	
33	3-704-243-11	SCREW (P1.7X2.0)	
901	*1-630-802-11	PC BOARD, JACK	

(2) CHASSIS



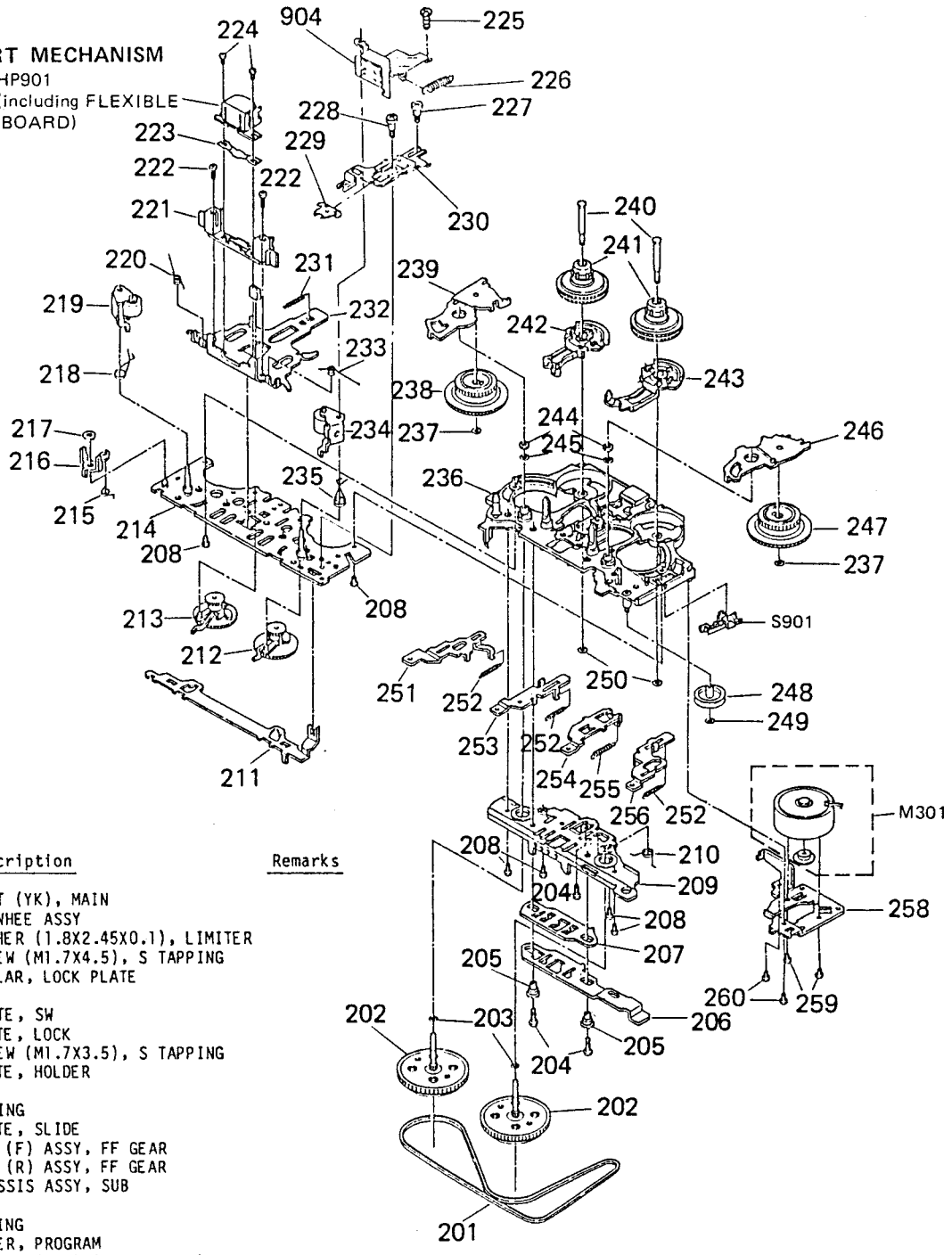
No.	Part No.	Description	Remarks
51	3-351-153-01	SPRING	
52	3-351-170-01	KNOB (C)	
53	3-351-170-11	KNOB (C)	
54	7-627-852-67	SCREW, PRECISION +P 1.7X6 TYPE3	
55	*3-351-176-01	(AF59)...CHASSIS	
	*3-351-176-11	(BF59)...CHASSIS	
56	3-326-134-01	SPRING, TORSION	
57	3-351-142-01	LID, BATTERY CASE	
58	9-911-850-XX	FELT	
59	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
60	3-351-151-01	TERMINAL BOARD, BATTERY	
61	3-831-441-XX	SPACER, KNOB	
62	3-351-152-01	SPRING	
63	3-351-169-01	JOINT (C)	
64	3-880-990-00	SCREW (1.7X3), FLAT, (+) SPECIAL	
65	3-318-201-51	SCREW (B) (1.4X4), TAPPING	
66	3-351-140-01	JOINT (D)	
67	7-627-552-07	SCREW (M1.7X2.5), TAPPING	
68	3-351-141-01	BUTTON (A)	
69	3-351-143-01	BUTTON (B)	
903	*A-3015-766-A	(AF59).....PC BOARD ASSY, MAIN	
	*A-3015-784-A	(BF59:AEP,E,FR).....PC BOARD ASSY, MAIN	
	*A-3015-785-A	(BF59:WG).....PC BOARD ASSY, MAIN	
L3	1-402-437-11	(AF59)...ANTENNA, FERRITE-ROD	
L3	1-402-449-11	(BF59)...ANTENNA, FERRITE-ROD	

(3) TAPE
(MT-WM

No.	Part
201	3-395
202	3-395
203	3-395
204	3-395
205	3-395
206	*3-395
207	*3-395
208	3-395
209	*3-395
210	3-395
211	*3-395
212	3-395
213	3-395
214	*3-395
215	3-395
216	3-395
217	3-395
218	3-39
219	3-39
220	3-39
221	3-39
222	3-39
223	3-39
224	3-39
225	3-35
226	3-35
227	3-35
228	3-35
229	*3-35
230	*X-33
231	3-39
232	*3-39
233	3-39
234	3-39
235	3-39
236	*3-39
237	3-39
238	3-39
239	3-39
240	3-39
241	3-39

(3) TAPE TRANSPORT MECHANISM (MT-WMA53)

HP901 (including FLEXIBLE BOARD)



No.	Part No.	Description	Remarks
201	3-395-041-01	BELT (YK), MAIN	
202	3-395-040-01	FLYWHEE ASSY	
203	3-395-057-01	WASHER (1.8X2.45X0.1), LIMITER	
204	3-395-047-01	SCREW (M1.7X4.5), S TAPPING	
205	3-395-015-01	COLLAR, LOCK PLATE	
206	*3-395-014-01	PLATE, SW	
207	*3-395-013-01	PLATE, LOCK	
208	3-395-046-01	SCREW (M1.7X3.5), S TAPPING	
209	*3-395-010-01	PLATE, HOLDER	
210	3-395-011-01	SPRING	
211	*3-395-003-01	PLATE, SLIDE	
212	3-395-004-01	ARM (F) ASSY, FF GEAR	
213	3-395-005-01	ARM (R) ASSY, FF GEAR	
214	*3-395-002-01	CHASSIS ASSY, SUB	
215	3-395-035-01	SPRING	
216	3-395-034-01	LEVER, PROGRAM	
217	3-395-053-01	WASHER (CUT) (1.85X5X0.5), P	
218	3-395-019-01	SPRING (R)	
219	3-395-030-01	PINCH ROLLER (R) ASSY	
220	3-395-022-01	SPRING (R)	
221	3-395-023-01	GUIDE, TAPE	
222	3-395-048-01	SCREW (M2X5)	
223	3-395-025-01	PLATE, SPRING, HEAD	
224	3-395-049-01	SCREW (M2X4), + - (SPECIAL)	
225	3-351-132-01	SCREW	
226	3-351-160-01	SPRING, TENSION	
227	3-351-131-01	SCREW, STEP	
228	3-351-131-11	SCREW, STEP	
229	*3-351-127-01	LEVER (A)	
230	*X-3336-729-1	LEVER (B) ASSY	
231	3-395-027-01	SPRING	
232	*3-395-020-01	PANEL (V), HEAD	
233	3-395-021-01	SPRING (F)	
234	3-395-029-01	PINCH ROLLER (F) ASSY	
235	3-395-018-01	SPRING (F)	
236	*3-395-001-01	CHASSIS ASSY	
237	3-395-054-01	WASHER (CUT) (0.8X2.4X0.25),HL	
238	3-395-032-01	GEAR (R), T CAM	
239	3-395-017-01	ARM (R) ASSY, T GEAR	
240	3-395-039-01	SHAFT, REEL	
241	3-395-038-01	REEL ASSY	

No.	Part No.	Description	Remarks
242	3-395-037-01	LEVER (R) ASSY, AUTO	
243	3-395-036-01	LEVER (F) ASSY, AUTO	
244	3-395-059-01	WASHER (1.45X3.2X0.5), HL	
245	3-395-058-01	WASHER (1.85X3.2X0.2), P	
246	3-395-016-01	ARM (F) ASSY, T GEAR	
247	3-395-031-01	GEAR (F), T CAM	
248	3-395-033-01	PULLEY, SUB	
249	3-395-055-01	WASHER (CUT) (0.85X2.8X0.25),P	
250	3-395-056-01	WASHER (CUT)(1.13X3.6X0.25),HL	
251	*3-395-008-01	LEVER (V), STOP	
252	3-395-045-01	SPRING	
253	*3-395-007-01	LEVER (R) (V), FF	
254	*3-395-009-01	LEVER (V), PLAY	
255	3-395-028-01	SPRING	
256	*3-395-006-01	LEVER (F) (V), FF	
258	*3-395-042-01	BRACKET, MOTOR	
259	3-395-051-01	SCREW (M1.7X1.6), CAMERA	
260	3-395-052-01	SCREW (M1.7X3), PS TAPPING	
904	*1-630-800-11	PC BOARD, SWITCH	
HP901	1-543-633-11	HEAD, MAGNETIC (PLAYBACK)	
M301	X-3336-744-1	MOTOR, ASSY	
S901	1-571-951-11	SWITCH, LEAF (POWER)	

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description
901	*1-630-802-11	PC BOARD, JACK
903	*A-3015-766-A	(AF59).....PC BOARD ASSY, MAIN
	*A-3015-784-A	(BF59: AEP, E, FR)....PC BOARD ASSY, MAIN
	*A-3015-785-A	(BF59: WG).....PC BOARD ASSY, MAIN
904	*1-630-800-11	PC BOARD, SWITCH
C1	1-163-099-00	(AF59/BF59: AEP, E, FR) ...CERAMIC CHIP 18PF 5% 50V
C1	1-163-102-00	(BF59: WG) ..CERAMIC CHIP 24PF 5% 50V
C2	1-163-102-00	(AF59/BF59: AEP, E, FR) ...CERAMIC CHIP 24PF 5% 50V
C2	1-163-104-00	(BF59: WG) ..CERAMIC CHIP 30PF 5% 50V
C3	1-163-085-00	CERAMIC CHIP 2PF 0.25PF 50V
C4	1-163-091-00	(AF59/BF59: WG) ...CERAMIC CHIP 8PF 0.25PF 50V
C4	1-163-093-00	(BF59: AEP, E, FR) ...CERAMIC CHIP 10PF 5% 50V
C5	1-163-097-00	CERAMIC CHIP 15PF 5% 50V
C6	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C8	1-126-157-11	ELECT 10MF 20% 6.3V
C9	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V
C10	1-163-129-00	CERAMIC CHIP 330PF 10% 50V
C11	1-162-638-11	CERAMIC CHIP 1MF 16V
C12	1-163-038-00	CERAMIC CHIP 0.1MF 25V
C13	1-163-038-00	CERAMIC CHIP 0.1MF 25V
C14	1-163-038-00	CERAMIC CHIP 0.1MF 25V
C15	1-163-035-00	CERAMIC CHIP 0.047MF 50V
C16	1-163-035-00	CERAMIC CHIP 0.047MF 50V
C17	1-162-638-11	CERAMIC CHIP 1MF 16V
C18	1-162-638-11	CERAMIC CHIP 1MF 16V
C19	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V
C20	1-124-431-00	ELECT 33MF 20% 4V
C23	1-163-205-00	CERAMIC CHIP 0.001MF 10% 50V
C30	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C101	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V
C102	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V
C103	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C104	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C105	1-124-432-00	ELECT 47MF 20% 4V
C106	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C107	1-162-638-11	CERAMIC CHIP 1MF 16V
C110	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V
C111	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V
C201	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V
C202	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V
C203	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C204	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C205	1-124-432-00	ELECT 47MF 20% 4V
C206	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C207	1-162-638-11	CERAMIC CHIP 1MF 16V
C210	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V
C211	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V
C301	1-162-638-11	CERAMIC CHIP 1MF 16V
C302	1-124-432-00	ELECT 47MF 20% 4V
C303	1-124-434-00	ELECT 220MF 20% 4V
C304	1-124-434-00	ELECT 220MF 20% 4V
C305	1-163-205-00	CERAMIC CHIP 0.001MF 10% 50V
C306	1-124-434-00	ELECT 220MF 20% 4V
C307	1-126-094-11	ELECT 4.7MF 20% 16V
C310	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V
C311	1-163-205-00	(BF59) ..CERAMIC CHIP 0.001MF 10% 50V
C601	1-163-077-00	CERAMIC CHIP 0.1MF 50V
C602	1-163-205-00	CERAMIC CHIP 0.001MF 10% 50V
CF1	1-567-090-00	FILTER, CERAMIC (455kHz)
CF2	1-577-090-61	FILTER, CERAMIC (10.7MHz)
CF3	1-577-091-11	OSCILLATOR, CRYSTAL (19kHz)
CF4	1-577-090-61	FILTER, CERAMIC (10.7MHz)
CP1	1-236-169-11	FILTER, BAND PASS
CV	1-151-653-11	(AF59) ..CAP, VARIABLE
CV	1-151-654-11	(BF59)...CAP, VARIABLE
D1	8-719-800-76	DIODE 1SS226
D301	1-807-738-11	DIODE SLR-34VR70F130 (LED)
IC1	8-759-230-39	IC TA8122AF
IC301	8-759-820-66	IC LA4580M
IC601	8-759-403-83	IC AN6650
J301	1-563-298-11	JACK (SMALL TYPE) (DIA. 3.5)(PHONES)
JW1	1-216-296-00	(AF59) ..METAL GLAZE 0 5% 1/8W
JW2	1-216-296-00	(BF59)...METAL GLAZE 0 5% 1/8W
JW3	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW4	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW5	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW6	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW7	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW8	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW9	1-216-296-00	(AF59)...METAL GLAZE 0 5% 1/8W
JW10	1-216-296-00	(BF59)...METAL GLAZE 0 5% 1/8W
JW11	1-216-296-00	(AF59)...METAL GLAZE 0 5% 1/8W
JW12	1-216-296-00	(BF59)...METAL GLAZE 0 5% 1/8W

Ref.No.	Part No.	Description
JW14	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW15	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW16	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW17	1-216-296-00	(BF59)...METAL GLAZE 0 5% 1/8W
JW18	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW19	1-216-295-00	METAL GLAZE 0 5% 1/10W
L1	1-459-848-11	COIL (WITH CORE) (RF)(FM ANT)
L2	1-459-847-11	(AF59/BF59: AEP, E, FR) ..COIL (WITH CORE) (OSC)(FM OSC)
L2	1-459-859-11	(BF59:WG)... ...COIL (WITH CORE)(FM OSC)
L3	1-402-437-11	(AF59)...ANTENNA, FERRITE-ROD
L3	1-402-449-11	(BF59)...ANTENNA, FERRITE-ROD
L4	1-406-285-11	COIL (OSC)(AM OSC)
L5	1-410-209-51	INDUCTOR CHIP 27UH
L6	1-410-209-51	INDUCTOR CHIP 27UH
L101	1-410-200-31	INDUCTOR CHIP 4.7UH
L201	1-410-200-31	INDUCTOR CHIP 4.7UH
L301	1-410-204-31	INDUCTOR CHIP 10UH
M301	X-3336-744-1	MOTOR ASSY
Q1	8-729-403-17	TRANSISTOR XN1215
Q101	8-729-271-23	TRANSISTOR 2SC7212
Q201	8-729-271-23	TRANSISTOR 2SC7212
R1	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R2	1-216-015-00	METAL GLAZE 39 5% 1/10W
R6	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W
R101	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R102	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R103	1-216-025-00	METAL GLAZE 100 5% 1/10W
R104	1-216-101-00	METAL GLAZE 150K 5% 1/10W
R105	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W
R106	1-216-058-00	METAL GLAZE 2.4K 5% 1/10W
R107	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R108	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W
R110	1-216-025-00	METAL GLAZE 100 5% 1/10W
R201	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R202	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R203	1-216-025-00	METAL GLAZE 100 5% 1/10W
R204	1-216-101-00	METAL GLAZE 150K 5% 1/10W
R205	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W
R206	1-216-058-00	METAL GLAZE 2.4K 5% 1/10W
R207	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R208	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W
R210	1-216-025-00	METAL GLAZE 100 5% 1/10W

Ref.No.	Part No.	Description
R301	1-216-034-00	METAL GLAZE 240 5% 1/10W
R302	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R601	1-216-196-00	METAL GLAZE 820 5% 1/8W
R602	1-216-149-00	METAL GLAZE 9.1 5% 1/8W
R603	1-216-139-00	METAL GLAZE 3.6 5% 1/8W
RV101	1-230-593-11	RES, VAR, CARBON 10K/10K(VOL)
RV601	1-238-594-11	RES, ADJ, CARBON 500 (SPEED)
S301	1-571-674-11	SWITCH, SLIDE (FUNCTION)
S302	1-554-843-11	SWITCH, SLIDE (BAND/MODE)
S303	1-570-114-11	SWITCH, SLIDE (TAPE)
S304	1-570-355-11	SWITCH, SLIDE (DIRECTION)
S901	1-571-951-11	SWITCH, LEAF (POWER)
T1	1-404-793-11	TRANSFORMER, IF (AM IFT)
TH601	1-807-488-11	THERMISTOR (POSITIVE)
TH602	1-808-680-11	THERMISTOR (POSITIVE)

ACCESSORY & PACKING MATERIAL

*3-351-182-01	(AF59/BF59: AEP, E, WG)...CUSHION (UPPER)
*3-351-183-01	(AF59/BF59: AEP, E, WG)...CUSHION (LOWER)
*3-353-707-01	(BF59:FR). ....CUSHION (UPPER)
*3-353-708-01	(BF59:FR)..... CUSHION (LOWER)
*3-351-191-01	(AF59:US).....INDIVIDUAL CARTON
*3-351-193-01	(AF59:Canadian)...INDIVIDUAL CARTON
*3-351-195-01	(BF59:AEP,WG).....INDIVIDUAL CARTON
*3-351-199-01	(BF59:E).... .....INDIVIDUAL CARTON
*3-353-705-01	(BF59:FR).....INDIVIDUAL CARTON
3-750-306-11	(AF59:Canadian/BF59)..MANUAL, INSTRUCTION
3-750-306-21	(AF59:US)..... ...MANUAL, INSTRUCTION
3-750-306-41	(BF59:AEP,WG). .... ..MANUAL, INSTRUCTION
8-952-261-90	(AF59/BF59: AEP, FR, WG) ...HEADPHONE MDR-W15L/Y SET
8-952-265-90	(BF59:E). .....HEADPHONE MDR-E215/Y SET
X-3336-728-1	CASE ASSY, CARRYING

9-953-780-11

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Audio Group

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